

The Association between Parental Smoking and Tobacco Consumption among Sample of Al-Nahrain Undergraduate Medical Students

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Abstract

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| Background | The tobacco epidemic is one of the most significant public health threats the world has ever encountered. Parental influence on siblings smoking initiation is important. |
| Objective | To explore the relationship between smoking status of the medical students and their parents, and to explore other associated demographic characteristics. |
| Methods | A cross-sectional study was done for the period from March to April 2023 at College of Medicine, Al-Nahrain University. Data (480 responses) were collected using a specifically constructed questionnaire that was distributed online to 500 students chosen randomly (100 student/stage) excluding the 6 th stage. |
| Results | The prevalence of smoking among students was 20.8% while parental smoking was 37.9%. Regression analysis showed odds of 1.6 being smoker if one of the parents is smoker. |
| Conclusion | The prevalence of smoking at College of Medicine, Al-Nahrain University students is high and the positive influence of parental smoking is of paramount. |
| Keywords | College of Medicine, Al-Nahrain University, medical students, parental smoking, smoking |
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List of abbreviations: B = Beta coefficient, CI = Confidence interval, df = Degrees of freedom, Exp(B) = Exponentiated beta (Odds ratio), SD = Standard deviation, SE = Standard error, SPSS = Statistical package for the social sciences, WHO = World Health Organization

Introduction

The tobacco epidemic is one of the most significant public health threats the world has ever encountered. Globally, tobacco kills more than seven million people annually through direct use and more than 1.3 million as the result of exposure to second-hand smoke ⁽¹⁾. Tobacco consumption associated with highest number of comorbidities such as increased risk of

coronary heart disease and stroke, respiratory diseases and cancer (increased risk to 25 times) ^(2,3). According to the World Health Organization (WHO), 22.3% of all population consume tobacco products (36.7% of men and 7.8% of women) causing death in every 6 seconds and remains number one preventable cause of death worldwide ⁽⁴⁾.

Nine out of 10 daily smokers had their first experience with smoking by age of 18 years ⁽⁵⁾. Although the prevalence of smoking in age group (15-24 years) globally declined from 20.8% (year 2000) to 14.2 (year 2020), several

studies showed that there is increasing prevalence of smoking among teenagers and students, for example, in United States, the prevalence of smoking and using smoking products had increased from 23.6% in 1996 to 33.1% in 2018 and in Egypt the prevalence increased to 46.7% in 2019 ⁽⁶⁻⁸⁾.

The prevalence of smoking among youth in Arabic countries varies, being high in countries such as Egypt (46.7%), Kuwait (46%) and Kingdom of Saudi Arabia (42.3%) when compared to Tunisia (14%), Yemen (12.4) and Bahrain (10.8%) ⁽⁸⁾.

Smoking and exposure to tobacco contents such as tar, nicotine and carbon monoxide can cause serious damage to adolescent's health (as their bodies are still not completely developed) making them more liable to develop chronic diseases with greater damage to their body cells and tissues than in adults ⁽⁹⁾. Globally, about 20% of medical students were smokers ⁽¹⁰⁾. The parental influence on siblings smoking initiation is well known fact; however, few studies in Iraq examined this relationship among medical school students. In Iraq, studies about the prevalence of smoking in general population (and among university students) are sparse and doesn't effectively suit the running fast epidemiological transition with urbanization, globalization and this wide-spreading smoking epidemic. In addition, no governmental health policy or new legislations were adopted to address or fight this phenomenon making the necessity to prioritize researches in this topic and that was our rational to conduct this study.

This study aimed to explore the relationship between smoking status of the medical students and their parents, and to explore other associated demographic characteristics.

Methods

A cross-sectional study was done for the period from March to April 2023 at College of Medicine, Al-Nahrain University. Data (480 responses) were collected using a specifically constructed questionnaire that was distributed

online to 500 students chosen randomly excluding incomplete responses. The questionnaire included demographic data (age, sex, college stage ...etc), in addition to the smoking status and type of smoking for both students and parents. Smoking status is defined as: Smoker (An adult who has smoked 100 cigarettes in his or her lifetime and who currently smokes cigarettes) and non-smoker (An adult who has never smoked, or who has smoked less than 100 cigarettes in his or her lifetime) ⁽¹¹⁾.

Ethical Consideration

The study was approved by the scientific and research committee of Family and Community Department at the College of Medicine, Al-Nahrain University. Participants were told about the research purpose and confidentiality about participant's information was insured.

Data analysis

Data were entered and analyzed using Statistical package for social sciences (SPSS), version 25. Normally distributed continuous variables were presented as mean±standard deviation (SD) and categorical variables were expressed with counts and frequencies. Chi-square test was used for the association between parental smoking state and medical student smoking state. Binary logistic regression used to predict the odds of student's smoking status. P value <0.05 were considered significant.

Results

The study included 480 medical students. The mean age of the participants was 21.8±1.6 yr, and the majority were female (57.7%) and single (98.3%). Most students resided in Baghdad (71.3%). Regarding health history, 93.3% reported no past surgical history, and 95.6% reported no past medical history. The mean duration of smoking was 4.0±2.32 yr. Analysis of student stages revealed that the highest number of smokers was observed in the fourth stage (36 students), followed by the

third stage (27 students). Conversely, the first stage had the lowest number of smokers (2 students), suggesting an increasing trend in

smoking prevalence as students progress through medical school (Table 1).

Table 1. Demographic characteristics of the studied sample

| Variable | | Number | Percentage |
|---------------------------|------------|----------|------------|
| Sex | Male | 203 | 42.3 |
| | Female | 277 | 57.7 |
| Age (yr)* | | 21.8±1.6 | |
| Marital state | Single | 472 | 98.3 |
| | Married | 8 | 1.7 |
| Residency | Baghdad | 342 | 71.3 |
| | Other | 138 | 28.7 |
| Past surgical history | No | 448 | 93.3 |
| | Yes | 32 | 6.7 |
| Past medical history | No | 459 | 95.6 |
| | Yes | 21 | 4.4 |
| Smoking state | Non-smoker | 380 | 79.2 |
| | Smoker | 100 | 20.8 |
| Parental smoking state | Non-smoker | 298 | 62.1 |
| | Smoker | 182 | 37.9 |
| Duration of smoking (yr)* | | 4.0±2.32 | |
| Student stage | First | 49 | 2 |
| | Second | 104 | 21 |
| | Third | 109 | 27 |
| | Fourth | 74 | 36 |
| | Fifth | 41 | 10 |
| | Six | 3 | 4 |

*mean±SD

The overall prevalence of smoking among the students was 20.8%, while the prevalence of parental smoking was 37.9% among the students who smoked (Figure 1).

There was significant association between parental smoking and offspring's tendency to smoke (p value= 0.04) (Table 2).

Regression analysis showed odds of 1.6 being smoker if one of the parents is smoker (Table 3).

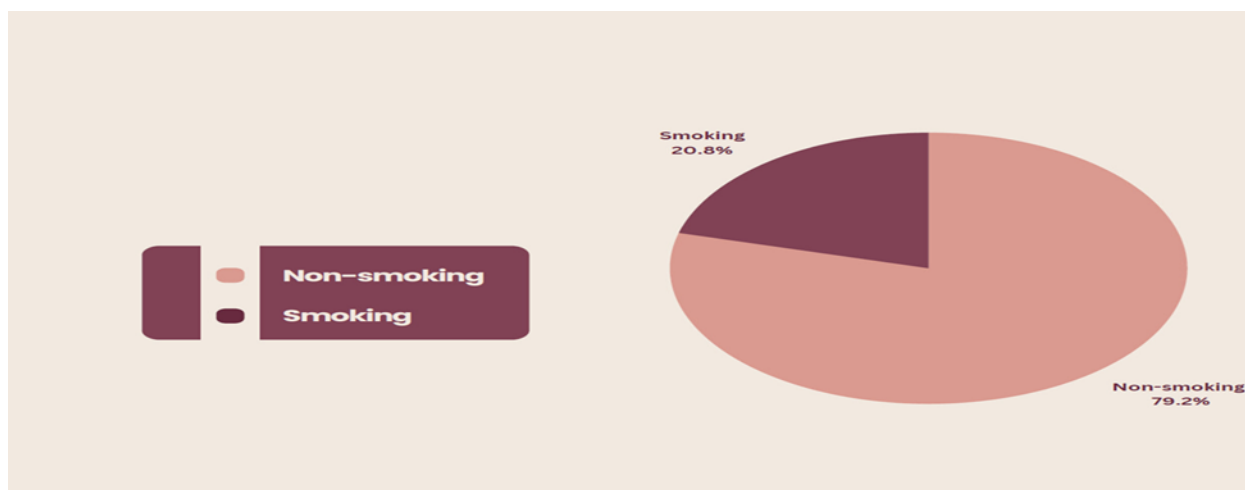


Figure 1. Prevalence of smoking among the medical students

Table 2. Association between parental smoking state and medical student smoking state*

| | Medical student Non-smoker | Medical student Smoker |
|---------------------|-------------------------------|---------------------------|
| Parental Non-smoker | 245 (82.2%) | 53 (17.8%) |
| Parental smoking | 135 (74.2%) | 47 (25.8%) |

*X²=4.43, d.f.= 1, p = 0.04

Table 3. Binary logistic regression for parental and medical student smoking status

| | B | SE | Wald | df | P value | Exp(B) | 95% CI |
|------------------------|--------|------|-------|----|---------|--------|-------------|
| Parental smoking state | 0.476 | 0.23 | 4.39 | 1 | 0.036 | 1.61 | 1.031-2.512 |
| Constant | -2.007 | 0.35 | 33.45 | 1 | 0.000 | 0.13 | |

Among the smoker medical students, the vast majority reported having a smoker father (approximately 90%). The proportion of smoker students who reported having a smoker mother only, or both parents smoking, was significantly lower (each less than 5%). Similarly, among the non-smoker medical students, the highest proportion of parental smoking was attributed to the smoker father (approximately 73%) (Figure 2).

For parents, the overwhelming majority of smoking is attributed to cigarettes (approximately 90%). Parental use of vaping devices is negligible (less than 1%), and hookah use is low (approximately 8%). In contrast, the smoking habits of medical students are more diverse as cigarettes take (50%) while vaping (26%) and hookah (24%) (Figure 3).

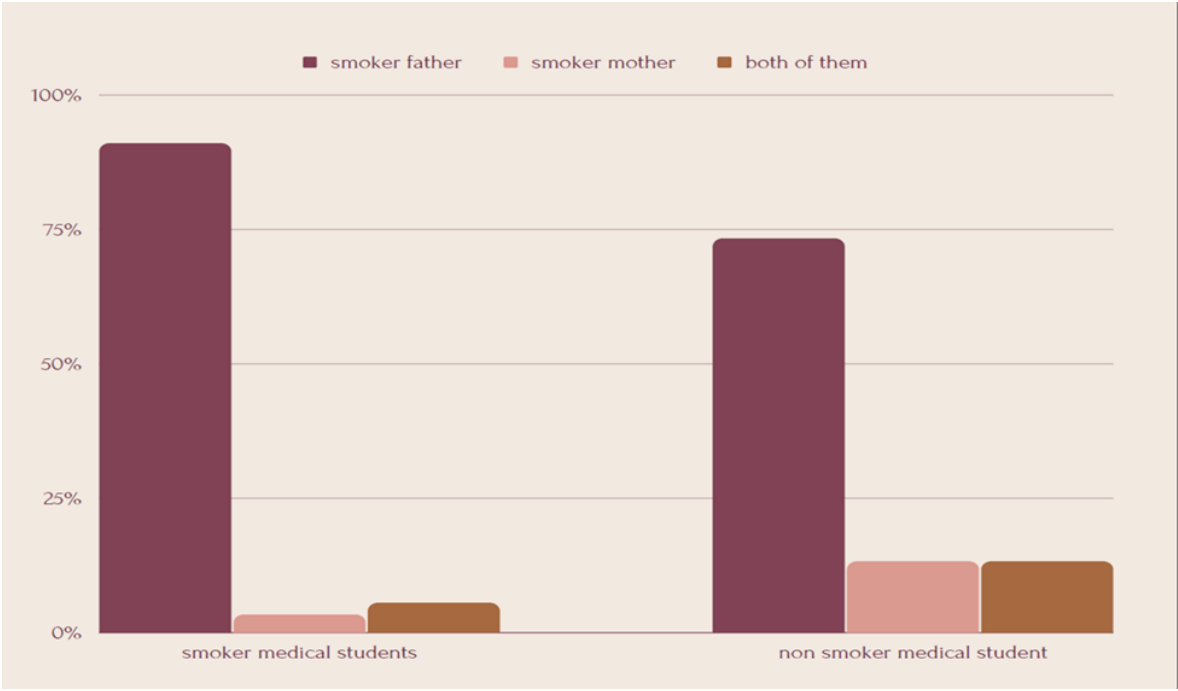


Figure 2. Distribution of parental smoking according to sex

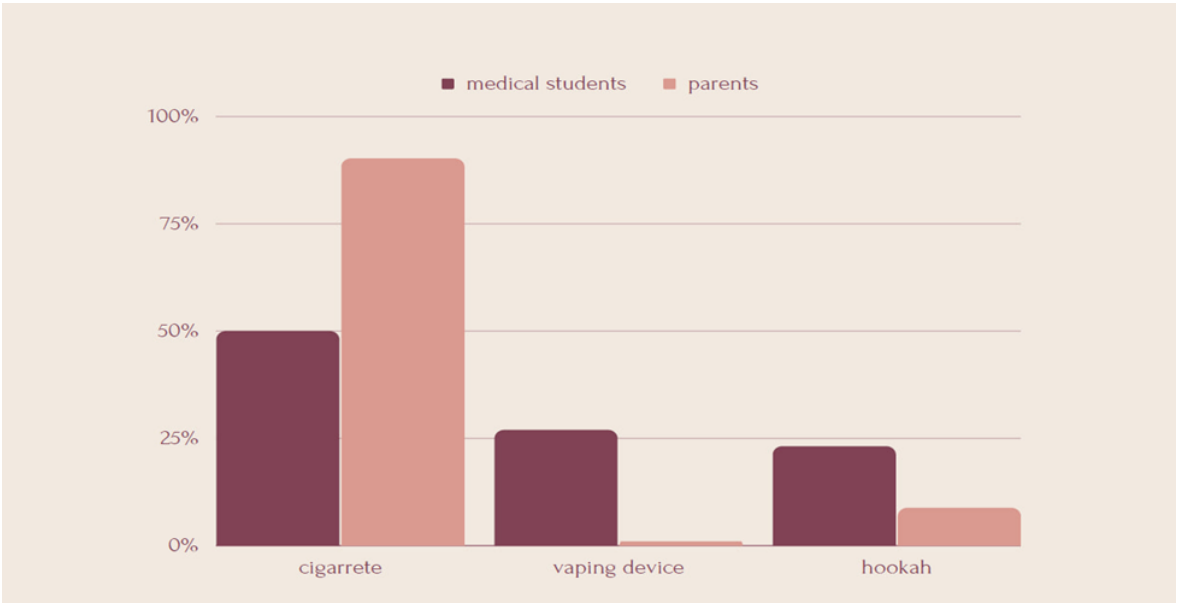


Figure 3. Type of smoke among medical students and their parents

Discussion

The prevalence of smoking among students was 20.8% and this is in agreement with other studies conducted in Iraq ^(12,13). However, one study conducted at Hawler medical students reported lower rate (12.3%) ⁽¹⁴⁾. To be worthy

mentioned, in this lower rate study the prevalence of female smokers was only 1.9% compared to 5.1% in this study. Compared to other countries in the region, the prevalence is lower than reported in Turkey and Iran ^(15,16).

There was significant association between parental smoking and offspring's tendency to smoke (p value = 0.04). Regression analysis showed odds of 1.6 being smoker if one of the parents is smoker. This finding aligns with theories supported by other studies^(16,17)

The influence of parents on their offspring's lives is not a recent discovery. Parents are essential resources for their children to build emotions, managing personality and constructing other behaviors. Furthermore, knowledge and practices of parents will be reflected directly on children knowledge and practices from the early till the late days of their lives. They serve in this role by providing positive affirmations, conveying love and respect and engendering a sense of security. This fact supported by several studies such as⁽¹⁸⁻²⁰⁾.

In terms of which parent has a greater influence, the results suggest that smoker students are more likely to have a smoker father, indicating a higher likelihood of smoking among offspring with smoker fathers (Figure 2). This finding aligns with the fact supported by a cross-sectional survey conducted in six European cities⁽²¹⁾. There's stronger effect exerted by fathers on their sons specifically in the initiation of smoking where age is noticed to be a strong predictor especially before the age of thirteen and less as the sons grows older with the influencing role of father came from that the father is the first role model for the child that he wanted to imitate his behavior⁽²²⁾. The risk of offspring initiation is said to be increased according to the nicotine dependency and persistence of parents smoking that leads to more parental psychopathology constellation.

Cigarette smoking was the predominant form of smoking among medical students (Figure 3). This what also what Ilić and his colloquies found⁽¹⁰⁾, however, in certain medical schools, the prevalence of vaping has been found to be higher⁽²³⁾. This high percentage can be attributed to the appealing smoky flavors and pleasant taste of vaping. Additionally, it doesn't

leave an unpleasant odor on hands or clothes, and can be used in non-smoking areas without being noticed⁽²⁴⁾. The variations in the results between parental preferred types of smoking and their offspring (Figure 3) can be attributed to the factors mentioned earlier. The current study is important as it focuses on an influential population subgroup that will have great impact on community (as they will be future physicians), which can cause a detrimental impact on community health in a serious manner. In addition, no governmental health policy or new legislations were adopted to address or fight this phenomenon making the necessity to prioritize research in this topic. Of the limitations of current study, it is a cross-sectional study and thus does not able to address the cause-effect relationship and data collection was through self-reported questionnaire and that make the results liable for self-report bias.

In conclusion, the prevalence of smoking at College of Medicine, Al-Nahrain University students is high and the positive influence of parental smoking is of paramount. More provision about smoking, new legislations and health education program about smoking should be adopted.

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Author contribution

Dr. Alogaili: Conceptualization, methodology, writing review and editing, supervision, and final approval of the manuscript. Dr. Mohammed: original draft preparation, writing review and editing, also, contribution to formal analysis. Dr. Khaleel: Data curation, data collection, formal analysis, and visualization.

Conflict of interest

The authors declare no conflict of interest for the present study.

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